

NATIONAL ELK REFUGE

NARRATIVE REPORT

January - December 1966

NATIONAL ELK REFUGE
BOX C
JACKSON, WYOMING

NARRATIVE REPORT
1966

PERSONNEL

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Ass't Refuge Manager.....Willard E. Blanchard
Clerk-Typist...Resigned (08/19/66).....Carol S. Hinchman
Foreman III.....William Sperl
Foreman II...Transferred Monte Vista Refuge (08/21/66)
Nels T.J. Winters
Foreman II...Promotion Eff.(11/20/66).....Wesley W. Goetz
Mechanic, Automotive.....James W. Flower
Maintenanceman.....Kenneth K. Leavitt
Maintenanceman.....Donald R. Taylor

U. S. Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Jackson Hole, Wyoming 83001

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National Elk Refuge
Annual Narrative Report
1966

I. GENERAL

A. Weather Conditions

The weather data is gleaned from records collected at the Teton National Forest weather station, one-half mile west of refuge headquarters.

	<u>Precipitation</u>	<u>Snow Fall</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
January	.81	8	47	-19
February	.32	7.25	43	-22
March	.73	9.00	61	-32
April	1.01	9.00	63	6
May	1.78	1.00	81	18
June	1.25	.0	86	19
July	.41	.0	94	27
August	.54	.0	87	22
September	2.49	.0	83	27
October	.77	Trace	68	10
November	1.96	9.25	55	- 4
December	1.48	19.75	44	- 22
TOTALS	13.55	63.25	Ext. 94°	-32°

The total precipitation of 13.55 for the calendar year is 1.28 inches less than the long time average of 14.83 inches. For comparative purposes, precipitation during the past 3 years for the January thru June period has totalled between 9.44 and 13.21 inches. Only 5.90 inches of moisture fell during the period this year. As expected, snowfall laid down in the high country during the winter fell short of the amount necessary to provide adequate irrigation. Fortunately, May was a good month and the above average precipitation of 1.78 inches fell as snow in the upper drainages and helped by adding to the amount of water stored there. May and June temperatures were especially cool and this slowed the thawing process on the high country snow pack and prolonged the run-off into the streams supplying our irrigation water. The

streams surprisingly enough, held up into July. The combination of additional snow in May and the retarded run-off gave adequate water for irrigation of refuge hay lands which was completed in early July. Ranchers irrigating later than this and those trying for a second cutting were not so fortunate. Available stream flows in August dropped to zero and cut short the irrigation of our grass lands.

Summer rains were light, which made ideal haying conditions for the hay contractor. Fall precipitation during September-October and November was about normal. Traces of snow appeared during October but no snow lay on the refuge until November. Local radio station K.S.G.T. conducted a contest for guessing the date of the first measureable $\frac{1}{2}$ " of snow in the Jackson Town Square. The winner guessed the nearest hour at 12:15 a.m. on Nov. 7th. The following day 3.75 inches of snow lay on the refuge, but a chinook on the 29th and 30th, coupled with rain, cleared all snow off the refuge and half way up the adjoining foothills. December snows resulted in 10 inches on the ground by the close of the year, with accompanying nightly temperatures around 10 degrees to 15 degrees below zero.

B. Habitat Conditions

The summer just wasn't a good one for forage production. There was a lack of ground moisture to start with, and in addition the major portion of the growing season (May 1st.-July 10th) had over 70% of the night time temperatures below 32°. May had 25 nights below freezing, June had 11 nights below freezing with one night down to 19°, and July had seven nights below 32°. It was a "three months late in the fall - - - summer" to raise a hay crop in. It is surprising that it is even possible to produce a forage crop in temperatures like this. As could be expected, the total production was down to 1,366 tons on Mormon Row, but supplemented by refuge production it was possible to put 2,049 tons in storage. This resulted in the State purchasing an additional 438 tons to help fill the hay sheds. Range forage production was harder to judge on our many acres where the wild grasses and sedges are left standing to be grazed by the elk herd in early winter. The overall appearance was that production was good but undoubtedly it was below the level we normally have. We have several range forage plots established by our past summer trainees but this year we were without such help and no forage production samples were made.

II. WILDLIFE

A. Migratory Birds

Trumpeter Swan

Peak population of trumpeters on refuge waters on January 8th was down to eleven birds. Feeding of grain to the trumpeters began after Flat Creek froze over - January 21. Swan prefer the natural feed available in the creek and will stay there as long as there are open leads between the ice shelves. The spring leads had the only open water until February 10th. When the creek opened the swan no longer were interested in the hand-out and began working the creek channels again. One of the leads the birds worked was near the Flat Creek highway bridge and this gave the winter bird-watchers a treat. With the spring break-up in April they left with the exception of one pair that nested in the refuge marsh. They successfully raised three cygnets. The pair that nested at Romney Pond in the Gros Ventre bottoms were not so fortunate. They hatched a bumper crop of six cygnets, but only succeeded in raising one. The first cygnet was lost when it was the size of a mallard, while the other four losses occurred one night when the young swans were Canada goose size. A check was made of the pond but no feathers or remains were found. The only predator sign was numerous coyote tracks in the mud along the pond edge and back water. The pair with their single cygnet finally showed up on Pierres Pond; traveling $1\frac{1}{4}$ miles thru a meandering system of streams, irrigation canals and beaver dams.

A small influx of trumpeters began in mid-October when four adults showed in the marsh bringing the tally to six adults and three cygnets, but there the movement stopped. Relatively mild temperatures left much open water throughout the valley and there was no 'fall' concentration of trumpeters in the refuge marsh this November. A gradual movement became apparent in December. More birds were seen exercising over the refuge and when a swan census was made December 21, there were 42 trumpeters on the refuge. Eight of these were cygnets.

Canada Geese

Canada goose numbers are always at a low ebb in January but we fared better than usual. During mid-month there was still

forty-five of these honkers using the marsh for a daytime resting spot. These finally moved out, and except for an occasional visit by a stray pair we were 'gooseless' until 18 Canadas returned on March 10th. There was no spring build-up, for geese by-passed the refuge in spring. Eight pairs frequented Pierres Pond in April for awhile but no nesting occurred there. A pair with a brood of six showed in the lower refuge on May 17 - and that was the extent of our production.

During November, the fly-in-to-rest mornings-and-out-to-feed-evenings flock tallied about 300 birds. The Christmas Bird Count tallied only four honkers resting on an ice shelf.

Ducks

A low of 225 ducks were recorded on the January 8 census. Approximately 45% of these were mallards, the remainder gadwall, baldpates, greenwinged teal and goldeneye, barrow and common. When feeding of trumpeters start, our duck numbers continued around 250-300 until February 2, when they increased to 400. Following this, the creeks began to open and numbers dropped. There was some movement through the area as species composition changed but at no time did we have more than the February 2 figure of 400 birds. By April 13, the cinnamon teal had returned. Shortly after May 1, twelve red heads appeared on the shop pond and one even nested bringing off a brood of five.

The summer population dropped to about 200 birds on our small marsh and pot-hole area. Production was low - probably no more than 150 birds. There was no significant fall influx of migrants and fall peaks would not exceed the 400 noted at the swan feeding station on February 2. This is the second year that our peak has occurred in conjunction with the swan feeding.

An unusual observation was two scaup which appeared on the shop pond on December 2.

On the December 21 Christmas Bird Count, a total of 267 ducks were counted. Of this number, 24% were mallards, 28% were common goldeneye, 13% pintails and 12% gadwalls. Baldpates were missing entirely from the inventory. Buffleheads, ringnecked ducks, common mergansers, barrows goldeneye, and green-winged teal made up the balance, in that order of abundance.

B. Upland Game Birds

Sagehens:

During August and September, a small family sized brood of seven sage-chickens fed in the vicinity of the North Gap quonset hut. They were seen several times. On the Christmas Bird Count on December 21, a flock was located in this same general area and it tallied 65 birds.

Other Grouse:

No ruffed grouse were seen this year although they were heard drumming on two occasions in the Gros Ventre bottoms. A female blue grouse with four young was seen in the Gros Ventre aspen hills on August 19.

Mourning Doves:

The following few dove observations were made and indicates normal populations:

	<u>Date</u>	<u>Number</u>	<u>Where</u>
May	11	1	Headquarters
May	12	1	Headquarters
May	19	2	Shop Area
June	15	7	North Gap
August	4	7	North Gap

C. Big Game Animals

Elk:

When the reporting period began, excellent feed conditions existed on the refuge. There was very little snow so the forage was easily obtained in the meadows and adjacent mountain slopes and the elk were scattered. Actually, there were only 1,800 to 2,000 elk on the refuge proper. Many large bands, however, were grazing the Sheep Mountain and Sheep Creek foothills and had been for a month. To us, this was ideal as these adjacent slopes receive little use in the fall and almost none in the spring.

As January progressed, the snow cover on the refuge increased and more elk began to move down to the refuge. The feeding of baled hay commenced on January 19, at two different locations on the refuge and the third feed ground started on January 26.

The feeding program, a seven-day-a-week-task when in full swing, requires the efforts of eight men, most of whom work a five-day week. It was necessary to schedule an irregular work week for part of the workers, in order to fill in the two day gaps between 40-hour weeks. This makes it possible to get the job done and to eliminate overtime payment using the 40-hour week.

On March 8, an elk census was made on all three feed grounds using personnel from all three Federal Agencies (BSFWS-USFS-NPS) and the Wyoming Game and Fish Department. The elk handled well and it was an accurate count with the following figures compiled:

	<u>Bulls</u>	<u>Spikes</u>	<u>Cows</u>	<u>Calves</u>	<u>Total</u>
Numbers (1966)	803	383	4,127	1,243	6,556
Numbers (1965)	930	594	4,859	1,533	7,946
Percentages (1966)	12.2%	5.8%	62.9%	18.9%	
Percentages (1965)	12 %	8 %	61 %	19%	

The calf-cow ratio (1966) is 30.1 calves per 100 cows.

The calf-cow ratio (1965) was 31.0 calves per 100 cows.

The elk feeding continued through April 5, when warming conditions moved in and the refuge and lowlands began shedding their snow mantle. It was a gradual thing and there was no appreciable run-off. The winter wasn't over yet however. A mid-April storm blanketed the refuge with two inches of wet snow and moved about 2,000 elk back onto the refuge lowlands. Except for this reverse movement resulting from this short storm flurry the main herd was on its way north and off the refuge by the end of April.

During the January 19 thru April 5 feeding period 2,604 tons of hay went through the 6,556 head of elk in the following manner:

<u>Feeding</u>	<u>Qtrs. 8</u>	<u>Shop</u>	<u>Qtrs. 4</u>	<u>Chambers</u>	<u>Total</u>
<u>Commenced</u>	Jan. 19	Jan. 19	Jan. 26	Mar. 13	
<u>Terminated</u>	Mar. 12	Mar. 14	April 2	April 5	
<u>Days Fed</u>	53 days	55 days	67 days	24 days	
<u>Bales Fed</u> (79.3 lbs./bale)	26,624	15,603	16,558	6,897	<u>65,682</u>
<u>Tons Fed</u>	1,056	619	656	273	<u>2,604</u>

It was the general opinion of feeders, elk counters and elk management personnel that the herd came through the winter in the best-ever condition with incidence of scab light, and the losses very low. Total carcasses hauled off the feed ground tallied: 15 cows, 13 calves, and only five large bulls (no spikes lost). This is a reversal of the bull-cow losses during severe winters except for the past two winters bull losses are always more and sometimes double the cow losses. The rule-of-thumb reason for this is that almost exclusively bull losses are scabie-losses. With a low scabies infestation combined with relatively mild temperatures, bull losses were low-low-low because once bulls lose a large amount of hair from scabies they die quickly when temperatures get lower than 20° below zero.

Elk numbers on the refuge during the summer were at the lowest ebb yet. It appears we are getting on top of our herd of Freddie-the-free-loader elk and this fall we hit them again with a 200 permit hunt.

The day following the end of the refuge hunt, a three-day storm moved in and dumped 3.75 inches of snow on the refuge and much more northward in the high country. On the 9th of November the storm cleared. Elk movement, triggered by the clearing weather, brought 3,000 elk into the refuge by the 13th and 14th, and this upped refuge elk numbers to an estimated 3,700 head. Thereafter, a gradual buildup continued, making only fair hunting for the Jackson Hole sportsman north of the refuge but increased the herd on the refuge to 5,500 by the end of November.

The gradual movement of elk into the refuge continued during December and when the reporting period ended an estimated 6,700 head were either on the refuge or immediately adjacent to it on the Teton National Forest lands.

Mule Deer:

The winter was an easy one on the deer herds. The first ten head moved onto Miller Butte on January 18. The largest daily tally was 46 head; one of which was a "grand-daddy" trophy sized buck. Between 150 and 200 head of "mulies" wintered along the west boundry between town and the Jackson Fish Hatchery. As usual, the deer stayed with us until late April then drifted into the Teton Forest lands to the east.

Generally, deer do not make an appearance on Miller Butte before the close of the period but they did this fall despite the mild conditions. Thirteen showed up on December 21.

Moose:

Moose are year around residents on the refuge but it is only in winter months that their numbers exceed a dozen animals. The favored area is the Gros Ventre river bottoms where 25 to 30 of these long-legged critters concentrate to winter in the willow stands during the November through March months. The remainder of the year, the few moose we have are likely to be seen any place on the refuge and especially so during May and October when they change ranges between the Gros Ventre bottoms and the forested slopes east of the refuge.

Buffalo:

Buffalo returned to their old haunts on Flat Creek and the Gros Ventre. We expected to see a Mountain Man or a band of Indians in hot pursuit, but it was only an old bull from Grand Teton National Park that had decided pastures were greener over the hill. It was startling, to say the least, for the staff at the fish hatchery to be confronted one morning by a buffalo bull ambling around in front of the hatchery building. He spent about a week exploring the refuge before he departed. Our last information was that he had joined a private herd east of the divide near Dubois.

Big Horn Sheep:

Rocky Mountain Big Horns moved into the rough cliffs along our east boundry as they always do during the winter months. On February 24, a total of 49 head fed along the cliffs and on the windswept ridges. Another area frequented by big horns is the ridge near the point where Flat Creek enters the refuge. No tally was made on the sheep in this hard-to-get-to spot.

In early November a ewe, a lamb and an 18-month old ram had again moved back onto their winter quarters on the Sheep Creek cliffs.

D. Fur Animals, Predators, Rodents and Other MamalsCoyotes:

Coyotes were as plentiful as ever. This should have been a winter when refuge numbers' normally would have been down somewhat due to the lesser snow cover in the valley making hunting easier for them elsewhere. These carnivores were all over the place and 19 were tallied at one elk carcass alone. Duponts disease, however, accounted for a slight reduction of coyotes in the valley as riflemen took a few

pelts now worth \$6.00 to \$8.00.

At the close of the period the value on coyotes had about halved, so, as it appears at present, even this little pressure on the coyote population will be relieved. It wouldn't be surprising if the Jackson Hole coyote -- PSY (that's: per-square-yard) rate wouldn't exceed any location in the United States.

Badger:

No particular change in the badger population. Numbers are moderate and this interesting, bench-legged, pugnacious earth-miner certainly keeps busy at the chore of digging out Uinta ground squirrel population. It is quite a sight to watch a badger working over a squirrel colony. He gets into a real frenzy when the squirrels are out and heckling him while he's deciding which one he wants to dig out first.

Bear:

Black bear observations were up, with four separate sightings. On May 5, a large brown was seen 3/4 mile east from the refuge office. On August 19, a medium-sized black was seen in mid-morning near "Weenie" Wilson property. On September 5, a yearling crossed the office lawn in his meanderings around town and on October 10, a sow with twin cubs ambled onto Miller Butte near Quarters No. 3. All-in-all it was a good year for bear observations. This was true throughout the valley. Bear seemed to be everywhere. It was a dry summer and a shortage of feed caused bruin to range far-and-wide outside his normal routes.

Weasel:

No significant change in the population. Both the erminea and frenata are present in the valley.

White-tailed Jack:

These large change-coat rodents continue in the scarce classification. Occassional single tracks around hay sheds or grass clumps is about all that is observed of these well camouflaged rabbits.

Uinta-Ground Squirrels:

"Chislars" as these burrowing squirrel are called here, are increasing on the slope east of Quarters No. 3 along the west side of Miller Butte. Numbers are fewer in the shop area and along the road east of Miller Butte.

E. Hawks, Eagles, Owls, Crows, Ravens, Magpies

Eagles:

Eagle observation's are specifically enumerated for the record.

<u>Kind</u>	<u>Number</u>	<u>Date</u>	<u>Where</u>
Golden	2	01-08-66	Miller Butte
Bald	1	01-11-66	Barclay's Bayou
Bald	2	01-12-66	Exhibition Pasture
Bald	1	01-26-66	Over Lower Refuge
Bald	1	02-01-66	Miller Butte
Bald	4	02-24-66	Poverty Flat
Bald	2	02-26-66	Exhibition Pasture
Bald	1	03-10-66	Miller Butte
Golden	1	04-02-66	Miller Butte
Golden	1	05-17-66	Miller Butte
Bald	1	11-03-66	Lower Flat Creek

Ravens:

Raven numbers were par for the year. The winter population - about 40 birds, help relieve the bleakness of winter with their paired flights over our snow covered almost no-bird world. They also create quite a rumpus with their quarrelsome wing flapping and raucous calling whenever they concentrate around an elk carcass and in winters stillness even this is a welcome sound.

Our summer population was about a dozen pairs but only two nests were located.

Magpies:

Jackdaws were here in their usual numbers - 40 to 50 individuals.

Hawks:

Our notes on hawks reminds us that during August there was a large concentration of Sparrow Hawks on Poverty Flat. Refuge Manager Redfearn and Hornbuckle (Regional Office) figured there were at least fifty individuals along this short two mile stretch of refuge. This movement was about a month ahead of the usual concentration.

The abundance of Red-tail and Marsh Hawks was normal. Unusual observations included three Prairie Falcons on April 2 and a Duck Hawk at Barclay's Bayou on December 29th.

Owls:

Great Horned, an uncommon bird here, was only observed twice during the period. One again serenaded headquarters (on March 11) from atop a power pole behind the refuge office with a return performance on December 26.

One short-eared owl was observed deep in the refuge marsh on December 21.

None of our other four owls were seen this year.

F. Other BirdsSandhill Cranes:

The first Sandhill; most-always-heard-in-the-spring-before-they-are-seen-observation, occurred on April 2. The first birds seen (2) were spotted on April 5 by Manager Redfearn and Foreman Sperl. More birds followed and on April 27, a flock of 23 was located in the Nowlin Creek Unit. A flock of 16 was seen as late as May 16, shortly before they moved out. Only two pair remained all summer. They raised one young. In September the southward movement began and in early morning hours their far-reaching calls could be heard over the refuge, signaling the approach of fall. On September 25 the peak concentration of 86 occurred. As is the normal procedure, one morning they circled higher and higher creating a swirling funnel of climbing and calling birds, then when enough elevation was reached they peeled off in groups flying southward over the rim of Jackson's Hole, headed for points unknown but to them.

Spring arrivals and other bird notes are best arranged by dates, as follows:

<u>Date</u>	<u>What</u>	<u>Where</u>
01-26-66	145 Gray-Crowned	Elk Feed Ground
01-26-66	Rosy Finch	Nowlin Creek
03-11-66	(3) Redwinged Blackbird	Quarters No. 4
03-16-66	(2) Pink-sided Junco	Miller Spring
03-16-66	(1) Meadowlark	Shop Area
03-20-66	(1) Mountain Bluebird	Shop Area
03-26-66	(1) Robin	Headquarters Area
03-26-66	(1) Meadowlark	Headquarters Area
03-28-66	Robins and Meadowlarks now common	

Spring arrivals and other bird notes continued:

<u>Date</u>	<u>What</u>	<u>Where</u>
04-01-66	(1) Tree Swallow	Quarters No. 9
04-04-66	(1) Great Blue Heron	Flat Creek
04-13-66	(3) Great Blue Herons	Miller Spring
04-20-66	(19) Robins	Headquarters Area
04-20-66	(1) Tree Swallow	Headquarters Area
04-28-66	Heard First Yellowheaded Blackbird	Headquarters Area
04-29-66	(1) Great Blue Heron	Flat Creek Marsh
05-06-66	(2) Curlews	Nowlin Creek
05-05-66	Yellowheaded Blackbirds now common	
05-09-66	(1) Lewis Woodpecker	Quarters No. 2
05-11-66	(2) Lewis Woodpeckers	Shop Area
06-15-66	(1) Blue Heron w/12" Cut- throat trout from brood stock pond	Refuge Shop
07-07-66	Pr. Curlew w/3 young	Poverty Flat
07-09-66	Sora Rail	Flat Creek Marsh
07-09-66	Pr. Curlew w/2 young	Poverty Flat
07-09-66	Pr. Curlew w/3 young	Poverty Flat
07-19-66	(2) Wilson Snipe	Barclay's Bayou
09-10-66	(1) Black-crowned Night Heron	Flat Creek Marsh
12-21-66	(1) Coot	Barclay's Bayou
12-21-66	(1) Killdeer	Barclay's Bayou
12-21-66	(2) Loggerhead Shrike	Nowlin Creek
12-21-66	(1) Red-shafted Flicker	Headquarters Area
12-29-66	(1) Duck Hawk	Barclay's Bayou

G. Disease: (Elk)

Losses from scabies, the scourge of the Elk Refuge, was at a low ebb during the past winter. January, February and March temperatures were relatively mild. That is, there were no prolonged periods of sub-zero temperatures that are generally required to kill the bulls suffering from severe infestations of the scab mite. The combination of a low infestation of scab plus milder temperatures resulted in the loss of only five bulls.

In recent years necrotic stomatitis has been a very insignificant factor in refuge elk losses.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Elk feeding began January 19 and continued through April 5 (77 days), consuming the entire efforts of six men on a seven-day work week. Upkeep of equipment, coordination and supervision also took most of the efforts of two additional people. Jobs incidental to elk feeding were repairs to hay sheds and wagons, hay conveyors, motors, tractor equipment greasing and repair, snow removal around sheds for access, for parking areas for visitors, cleanup of hay sheds and hauling off of bale ties consumed many more hours of labor not directly connected with the actual forking out of hay to the elk herd.

With the passing of winter, many miscellaneous jobs were attended to before weather permitted us to start on our general farming program. Some of these chores included sled repair, tractor repair, culvert cleanout, gravel hauled and spread, roadside snowplow guide poles picked up and stored, roads graded twice, plus a supply of canvas dams built and others repaired. Irrigation ditch cleanout of some 110 miles of our water spreading network was done with tractors and ditchers. Headgate repair and placement of new headgates was a major job function.

Farming chores included the irrigation of 1,000 acres of hay stands in the refuge, plowing of 80 acres at Mormon Row and 60 acres in the Headquarters unit. Approximately 400 acres of hay stands were spring toothed to open up the stands where brome was taking over. Seven hundred and sixty acres were fertilized at Mormon Row with fifty tons of 33 1/3% Ammonium Nitrate at \$79.00 a ton. The November application was done on three inches of snow at the rate of two hundred and fifty pounds of applied or eighty-three pounds of available Nitrogen per acre. Wyoming Game and Fish Department paid for three hundred and sixty acres or \$3,634.00.

Twenty-five hundred new, sixteen foot fence poles obtained in eastern Idaho were hauled by refuge personnel and many used in the construction of a pole and buck fence between private land owner Wendell Wilson and the refuge. All labor and materials by the refuge, as a condition of a land exchange.

Building maintenance, including furnace repairs, sewer clean-outs, interior and exterior painting, was required as well as purging of Quarters No. 3 water well. New fluorescent lighting was installed in the refuge office. The McBride horse barn was moved to the Nowlin Creek unit. This job was accomplished by refuge personnel.

Rock and log barriers were placed at strategic locations and gates placed across roadways at these select spots to protect the shop, storage buildings and to prevent unnecessary egress of the refuge.

The edges of both sides of the Gros Ventre diversion canyon, some one-half mile in length, was dozed off into the canyon below. This gave the lip of the gorge a rounded appearance and spread soil along the face of the slope in an attempt to heal the scars from mans missuse of the land (see photo section). After treatment with the D-7 dozer, the slopes and bottom of the gorge were seeded with a grass mixture.

Maintenance of the headquarters grounds during the summer months and later tree planting, took a considerable number of man hours work.

Posting of the entire refuge hunting unit and removal of all refuge hunting signs afterwards was done. The patrol of the open hunting area required the efforts of one man, seven days a week for the five weeks the hunt was conducted.

Two large back-lighted informational display boxes with an array of eight 8" x 10" wildlife transparencies were built. One was installed in the refuge office and one placed in the office of the Jackson Hole Chamber of Commerce. The latter sign has six display bins for holding a supply of each of the refuge leaflets.

B. Plantings:

Hay harvested at Mormon Row totaled only 1,366 tons and was a long way from our annual target of 2,500 tons. It was an extremely low production year throughout the valley with most ranchers reporting but a 50% crop. In addition to the Mormon Row crop, 683 tons were harvested on the refuge proper and went into our storage sheds - making our production 2,049 tons. We had fed out 2,604 tons during the past elk feeding program (January through April period) so after storing the 2,049 tons our sheds were still quite a ways from full. Under these conditions the Wyoming Game and Fish Department is committed to purchase hay and they purchased 438 tons and stored

it in the refuge sheds, at the going price - around \$35.00 per ton - or a cost to them of an estimated \$15,251.00.

During the many years that the Wyoming Game and Fish Department have been feeding elk on their many small feed grounds scattered throughout the valley, they have been filling their hay needs by hay purchases in the "Hole". The only deviation from this is when Elk Refuge sheds are full, any surplus hay we produce goes to the Game and Fish Department for their use elsewhere in the valley.

The picture is changing rapidly. With the present real estate situation that has developed in the "Hole" in the past three years surplus hay for purchase by the Wyoming Game and Fish Department may soon be a thing of the past. Many acres in the valley, used in the past for raising \$30.00 hay are now selling for \$2,000.00 to \$8,000.00 per acre for home sites. With a stub of pencil and piece of paper ranchers have come to the conclusion that \$2,000.00 in the bank on an acre of land at 4% is a better return than fighting mosquitos, irrigating and bucking bales for an annual return of \$50.00 per acre. Things are changing!

This pinch on hay purchasing was felt this past summer. In an attempt to off-set this, the Game and Fish Department shelled out \$3,634.00 for fertilizer to increase production on our Mormon Row lands. The rule of thumb here is that fertilizing on this type hay lands at the rate of 80 pounds of available nitrogen will increase production by a ton-per-acre. With a good average growing season next summer this \$10.00 per-ton-hay will be the cheapest buy they'll find in the valley.

A total of 5,367 tons of hay was in storage in refuge sheds on January 1st. During the January into April feeding period a total of 2,604 tons of hay was fed out. We, therefore, entered the summer period with 2,763 tons still in refuge sheds. Total hay put into refuge storage during the summer tallied 2,487 tons for a total of 5,250 tons in storage at present. All sheds are full except the McBride shed and it could hold only a few more tons.

C. Collections and Receipts:

On August 1st Merle Bennett arrived from Kirwin with 200 bushel of wheat for winter feeding of our Trumpeter Swan flock.

IV. RESOURCE MANAGEMENT

A. Grazing:

Nine saddle horses, property of Grand Teton National Park, are wintered on the refuge each year as covered by previous agreement.

The parcel of land west of highway 89 covered by Special Use Permit No. 23416 is still under lease for 24 AUM's to Clifford P. Hansen (now Senator from Wyoming). Very little use is made by the permittee, of this steep hillside plot which is across the highway from the refuge. The slopes are grazed by 20 to 30 head of mule deer during the winter months and this is the only livestock we've noted on it. This permit expires February 28, 1968.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

The Experimental grass plantings on the headquarters hay field were partially successful in terms of growth. Timothy, intermediate wheat, Russian wild rye, orchard grass and alta fescue were planted in plots varying in size from six to thirty-six acres each in the fall of 1965. Germination and fall growth on all varieties were highly successful. A December wind with rain removed all snow cover and the extreme cold temperatures which followed practically eliminated the rye, fescue and orchard grass. The wheat and timothy survived and responded with vigorous growth during the summer.

Elk use was very sparse and limited on the timothy and practically nonexistent on the wheat. The little use that did occur on both these plots seemed to be only on the short green shoots of fall germinated regrowth.

Some reseeding will be done in the spring of 1967 on the rye, fescue and orchard grass plots to obtain a stand that can be adequately gauged to determine elk use.

A two acre plot of creeping meadow foxtail was planted about three years ago in the swale below the old quarters at the shop area. The site receives all the tail water from irrigation of the experimental plots and the response by the foxtail has been outstanding. The real encouraging point about this plot has been the use by the elk. It was worked over very heavily, no less than three times in the fall of this year. A larger plot in the wet meadow site along the Gros Ventre River will be planted next summer to provide further evaluation of elk use of this grass.

VI. PUBLIC RELATIONS

A. Recreational Use:

Total visits continued at a level about equal that of 1965, even though this was the year that the National Elk Refuge was designated a fee area under the Land and Water Conservation Fund Program. Sales of the "Golden Eagle" passport and daily permits totaled 28 and 10 respectively. The disparity between sales of permits and numbers of visitors is a result of the unique situation that exists here. We cannot charge a fee for traveling the road through the refuge to Teton National Forest nor for taking advantage of the turnouts along highway 26, 189, 287 for the purpose of viewing elk in the refuge exhibition pasture. What else does the refuge have to offer? Some fishing and some bird watching along the highway turnouts. If we are to adhere to the guidelines established for determining a fee area, it is illegal to charge a fee at this station.

The program was administered by posting a notice at headquarters and at the main entrance that the refuge was a designated fee area and that permits could be purchased at the office. No effort was made to check people along the road in the refuge because, as mentioned previously, we could not stop them from traveling through the refuge to the forest or to private lands. Such an effort would have met with no success because virtually 100% of all vehicles would have had permits for their visits to Grand Teton and Yellowstone National Parks. In addition, there is no enforcement authority in the event an individual elects to go for free.

For the first time in the history of the refuge, visitors were charged a fee to ride sleighs to observe the elk and winter feeding operations. It had been the custom for visitors to ride the feed sleighs for a real close-up view, but this use had increased to such a high level that we could no longer accomodate guests and still accomplish our job of feeding elk. During the winter of 1965, an estimated 6,700 people rode the feed sleighs, with a high of 1,100 on a single weekend.

The Jackson Junior Chamber of Commerce was given free use non-profit concession permit to haul visitors to the feed grounds. Fees of \$1.35 for adults and \$.65 for children ages 6-12 were established to cover the cost of providing the services. The natives were outraged! How could it

be possible that they would now have to pay for something that had been free for 54 years? Even so, there were 1,895 adults and 558 children fares tallied by the seasons end. The majority of these visits were by skiers and other visitors from outside the valley.

The "elk drive" was held on May 21st. This affair, which purports to drive the elk off the refuge and force their migration northward, now attracts large numbers of people from as far away as Boise, Idaho. The weather was terrible - wind, rain and snow - but there were still 88 riders which left the staging area. Within minutes, many of these were back to seek the comfort of automobiles and to partake of the free food prepared by Wyoming Game and Fish Department personnel. The success of this drive is rather dubious and the increased participation by organized riding groups casts grave doubts as to the validity of the original purpose. It must be stated frankly that this years effort was a highly disorganized fiasco. Future efforts to "drive" the elk will be given much more searching thought and guidance.

Birdwatching, fishing and horseback riding were activities that changed but little from previous years. Fishing use at Pierre's Pond probably decreased to some degree because no stocking was done this year. This fishing will gradually be phased out because of competition with trumpeter swan.

B. Refuge Visitors:

<u>Name</u>	<u>Organization</u>	<u>Date</u>
Doris Lupke	Munich, Germany	01-20-66
Robert Sisson	National Geographic Society Washington, D.C.	02-09-66
Senator & Mrs. Fred Bartling	Douglas, Wyoming	02-20-66
Charles L. Cadieux	BSFW-Albuquerque, N. Mex.	03-03-66
Noble E. Gregory	South Park Water Use	04-28-66
Ernest Morris	R.O. - Engineer Albuquerque, N. Mex.	05-02-66
Ed C. Zigler	Div. Engineering Washington, D.C.	05-02-66
James A. Brown & group	Oglala Souix Corps Pine Ridge, South Dakota	05-05-66

Refuge Visitors continued:

<u>Name</u>	<u>Organization</u>	<u>Date</u>
Robert Means	Seedskaadee Refuge -BSFW	05-06-66
William J. Petrik	R.O. - Engineer Albuquerque, N. Mex.	05-19-66
William A. Goldby	R.O. - Engineer Albuquerque, N. Mex.	05-19-66
Elmer T. Nitzschke	R.O. - Soliciter Office Albuquerque, N. Mex.	05-21-66
Robert E. Osthoff	R.O. - Engineer Albuquerque, N. Mex.	05-23-66
Musa Lole Kano	Kano Northern Nigeria	05-19-66
Pete Carter & family	Sheldon-Hart Mtn. Refuge	06-09-66
Jerry Wilson & family	BSFW - Lower Souris, North Dakota	06-16-66
William Ackerknecht	Arlington, Virginia	06-16-66
Antti Haapanen	Forest Research Inst. Helsinki, Finland	06-16-66
Lynn Greenwalt & family	BSFW-Albuquerque, N. Mex.	06-21-66
Roe Meyer	BSFW-Cheyenne, Wyoming	06-27-66
Ken Baer	BSFW- R.O. Albuquerque, N. Mex.	07-01-66
Sam & Lili Sage	BSFW - Fort Peck, Montana	07-22-66
Hunter Eu	Taiwan Forestry Bureau	07-27-66
Julian A. Howard & family	BSFW - Wichita Mountain Refuge	07-27-66
Mitchell "Red" Sheldon	R.O.-BSFW-Albuquerque, N. Mex.	08-02-66
William T. Krummes	R.O.-BSFW-Albuquerque, N. Mex.	08-02-66

Refuge Visitors continued:

<u>Name</u>	<u>Organization</u>	<u>Date</u>
Mr. and Mrs. Herb Dill	BSFW-R. O. Minneapolis, Minn.	08-03-66
Rollin Hornbuckle	R.O.-Albuquerque, N. Mex.	08-17-66
Getaeigw Zende	Addis Ababa Ethiopia (Fresno St. College)	08-26-66
J. B. Mkandamire	Kasyata, Kaporo, Karonga, Malawi	08-26-66
Marcus Nelson	R.O.-Albuquerque, N. Mex.	08-26-66
John Jones	BSFW - Washington, D.C.	08-26-66
Harry Grandell	BSFW - Washington, D.C.	09-18-66
John VandenAkker	BSFW - Portland, Oregon	09-18-66
E. R. Lumb	BSFW - Washington, D.C.	10-09-66
W. H. Berry	BSFW - Washington, D.C.	10-09-66
J. J. Harman	R.O.- Albuquerque, N. Mex.	10-10-66
H. J. Johnson	BSFW - Ouray Refuge	10-13-66
Roe Meyer	BSFW - Cheyenne, Wyoming	12-19-66

C. Refuge Participation:

A variety of activities demanded refuge participation. In addition to the standard meetings and contacts with cooperators such as Grand Teton National Park, U.S. Forest Service, Wyoming Game and Fish Commission, Soil Conservation Service, Jackson Jaycees and others, refuge personnel were involved in the following manner:

- 1) Redfearn made a trip to Cheyenne in April to attend the meeting to set the date and kill quota for elk hunting on Grand Teton National Park. This also provided an opportunity to get acquainted with members of the Wyoming Game and Fish Commission.

- 2) Hinchman, Blanchard and Redfearn attended the Civil Service Course, "Meet the Public", at Grand Teton National Park.
- 3) Taylor, Winters and Redfearn attended the F.B.I. law enforcement training session at Grand Teton National Park.
- 4) Blanchard and Redfearn toured wildlife management groups from Colorado State University, University of Idaho and the Oglala Sioux Ranger Corps from Pine Ridge, South Dakota over the refuge and explained refuge operations.
- 5) Several visitors from such foreign nations as Nationalist China (Taiwan), Kenya, Finland, Nigeria, Australia, Germany, Ethiopia and Malawi, were given conducted tours in our coordinated program with Grand Teton National Park.
- 6) Redfearn presented a program to the Jackson Rotary Club in July and in September became an active member of the club.
- 7) Redfearn attended the Wyoming Wildlife Federation annual convention in Sheridan in June and made a short presentation on the elk feeding program.
- 8) Redfearn accompanied Forest Ranger Donald Hooper and Dr. Kenneth Diem on a week-long trip into the Teton Wilderness area and Yellowstone Park for orientation and review of a major portion of the elk summer range.
- 9) Redfearn attended the annual meeting of the Wilderness Society in Yellowstone Park in August.
- 10) Redfearn served on the panel of three judges which selected the winners of the Conservation Awards presented annually by the Wyoming Wildlife Federation and the Sears Foundation. He attended also the banquet in Rock Springs where the presentation of awards were made.
- 11) Redfearn attended with refuge managers Means and Marlatt, an Equal Opportunity Seminar in Cheyenne in November, which was sponsored by the Federal Executives Council of Cheyenne.
- 12) Redfearn accepted the post of chairman of the committee responsible for plantings and placement of a plaque in the city park in memory of Naturalist Olaus J. Murie.

- 13) Blanchard gave a talk to National Association of Soil and Water Conservation District delegation in June.
- 14) Blanchard gave a talk to fifty 4-H youngsters in May.
- 15) Blanchard and Redfearn attended Association of Midwest Game Law Enforcement Officers meeting in Jackson in June.
- 16) Blanchard and Redfearn attended Central Flyway Waterfowl Council meeting in Jackson in August.
- 17) Redfearn met with Assistant Secretary Stanley Cain and GTNP Superintendent Jack Anderson on August 27th.
- 18) Sperl is an active member of the elks club.
- 19) Flower serves as Teton County Civil Defense Director; is a member of the ski patrol; and is a member of the Jackson volunteer fire department.
- 20) Taylor is active in 4-H work and is a member of the three clubs, Galloping Squares, Jackson-Wilson Roping Club and Teton Barrel Racers Association.
- 21) Winters was active in Boy Scouts of America until his transfer in August.

In addition to the foregoing, the refuge assists the Jackson District of the Boy Scouts of America by permitting the collection of elk antlers shed on the refuge. The sale of the antlers goes a long way in satisfying the monetary requirements of the district and greatly lessens the amount of solicitation that must be done for funds. The refuge benefits in two ways. First, it is a good public relations angle, and secondly the scouts pick up the antlers and save us the manpower it would take to do this. There has been some thought of getting the Jaycees to cooperate in this venture to help subsidize their visitor hauling program, but no details have been worked out yet.

D. Hunting:

The most successful elk hunt to date occurred this year. The usual 200 permits were issued at the rate of forty per week for five weeks, beginning October 1st and ending November 5th. There were 1,093 applicants for the 200 permits and 133 of the permit holders were successful in making a kill. The high success was attributed to the dates of the hunt. In past years the hunt was through September and only last year did it extend into mid-October. The hunt this year overlapped the Grand Teton National Park hunt for three weeks and with having it extended through October, the success ration increased greatly. The refuge hunt, for the first time, served to assist in obtaining the kill quota for the A and B hunt units in the park, as well as control the sedentary herd along the Gros Ventre hills area

of the refuge. This was not particularly by design, but now that such success has been observed, it is evident that the future timing and scheduling of hunts will certainly be guided by this years results.

<u>Week</u>	<u>No. of applicants</u>	<u>No. of elk killed</u>
#1	193	30
#2	162	13
#3	224	23
#4	228	32
#5	286	35
	<u>1,093</u>	<u>133</u>

The break-down of the kills show we took forty-two big bulls, thirty spikes, forty-nine cows, and twelve calves.

For two falls now the hunting area has extended south and west, deep into the refuge marsh to Nowlin Creek. Opening this lowest portion of the refuge has a two-fold purpose. It helps to remove a few more of the summer boarder elk that hole-up in the refuge marsh after the first flurry of shots in the hunting area. Secondly, it keeps the early October migrants - - 1,000-2,000 from congregating in the marsh and saves this bottom lands grazing for the late November and December animals. In many past Octobers, even with bare slopes off the refuge and no snow on the refuge, a large herd has built up in the marsh when these animals could just as well be grazing on lands off the refuge and saving the refuge forage for the time when it is really needed.* Opening the refuge bottoms has accomplished this and we like it. The issuing of weekly permits can be stopped by the Wyoming Game and Fish Commission at any time deemed necessary.

E. Violations:

The violations were few for the year. They are listed in the following table:

<u>Violation</u>	<u>Violation-Data</u>	<u>Action</u>
Gomie Joe Garcia China Lake, Calif.	Shooting on refuge (coyote) 8/28/66	\$50.00 Bond (forfeit)
Robert W. Smith Casper, Wyoming	Carrying & possessing gun on the refuge 10/8/66	\$10.00

Violations continued:

<u>Violation</u>	<u>Violation-Data</u>	<u>Action</u>
Elizabeth J. Morrison Jackson, Wyoming	Carrying & possessing gun on the refuge 10/8/66	\$10.00
Errol D. Severe Houston, Texas	Carrying & possessing gun on the refuge 10/16/66	\$5.00
Joe D. Banks Gillette, Wyoming	Carrying & possessing gun on the refuge 10/16/66	\$5.00
Thomas K. Lamb Jackson, Wyoming	Carrying & possessing gun on the refuge 10/16/66	\$5.00
Rod Roskie Jackson, Wyoming	Carrying & possessing gun on the refuge 10/23/66	\$5.00

The violations involving possession of firearms in closed portion of the refuge was the result of enforcement of paragraph 28.12 of Chapter 1, CFR title 50, in a situation that had been ignored in the past. Hunters had been in the habit of watching the elk move through the refuge onto the forest along the south boundary. In this area, it is less than $\frac{1}{2}$ mile from the road, across a completely open area, to the boundary and an abruptly rising, forest covered mountain. As soon as a group of elk crossed the refuge and sought cover on this mountain, the hunters would hot-foot it across the refuge in pursuit (generally waiting until they got to the forest to do their shooting). In fact, refuge employees had been guilty also of crossing this particular area with firearms for access to the forest. For reasons unknown, past management had chosen to accept such procedure. Wide publicity was given the new restrictions (new to the hunters) prior to the hunting season. Some criticism was received, but by-and-large the situation was accepted more readily than had been anticipated and in many instances praise was offered. Wyoming Game and Fish Department personnel and the U.S. Forest Service personnel have been concerned about the area being completely closed off because of our action and it is probable that a narrow corridor of access will be provided for in future hunting regulations.

F. Safety:

Regular monthly safety meetings have been held during the past year and the year has been a safe one, too, for our regular personnel.

Extra precautions were taken with our Y.O.C.'s but even the most generous application of safety campaign sometimes doesn't seem to suffice for these youngsters.

Unfortunately one individual had three accidents but luckily none were lost-time. Only the eagle-eye care of our regular people prevented dangerous conditions from developing.

It has been 998 days since our last lost-time accident.

VII OTHER ITEMS

A. Items of Interest:

Conservationists throughout the nation joined forces in killing a proposal by the Jackson School District to secure free-lands from the National Elk Refuge for expansion of school facilities. The District was aided in its efforts by Representative Tino Roncalio. The initial request was for 100 acres, but this was finally whittled to 17 acres through their negotiations with the top echelon of the Bureau and the office of the Secretary. When the Izaak Walton League and the Wyoming Wildlife Federation became aware of what was happening they were incensed that a "raid" was being made on the refuge. It was only through the efforts of these two groups that the refuge remained intact. It was their feeling that the Bureau was remiss in not standing up and refusing to even consider such proposals. There is little doubt in our minds that had this thrust been successful, it would have been only a matter of time until all the refuge would have vanished via the same route.

Part of the argument used by the School District was that the County is 97% Federal and State owned and that they do not have sufficient tax base to raise funds. This argument has merit but the new Revenue Sharing Act invalidates such arguments when referring to the lands of the Bureau of Sport Fisheries and Wildlife. Teton County was presented a check in the amount of \$22,013.28 in lieu of taxes. For once we didn't receive criticism.

The city of Jackson drilled a third water well on the refuge in September. They received approval in 1964 for four wells but drilled only two at that time. They wanted to change the location of the third well from the approved site, and when this was refused, because of management considerations, the city fathers were slightly unhappy with the refuge manager. It is doubtful whether the fourth well will ever be drilled. Number three did not develop the volume that was expected and site four is in a location further removed from the suspected bounds of the main aquifer.

Four buildings were sold and removed from the refuge in a campaign to gradually update facilities. A fifth building has been designated for salvage. This still leaves many antiquated and obsolete structures, but in many instances final disposal must await new facilities for want of space to store equipment and materials.

There are few neighbors on the refuge boundary and this is fortunate, because the problems that are generated by two of these are enough. Mr. Wendell Wilson, owner of the Teton Valley guest ranch on the Gros Ventre River, is much disturbed that he has been put on notice that he cannot trespass with his trail ride groups onto the refuge. He has, in the past, used without authorization the Gros Ventre hills region of the refuge pretty much as a private territory for bridle paths and trail rides for his young guests. The area is too critical to the well being of the elk herd to permit unrestricted access and use, particularly with the ever increasing volume of people pressures in Jackson Hole. This gentleman is not accustomed to being opposed in his actions evidently, because he could not accept the restriction as presented through informal discussions with the manager. When he chose to ignore the verbal notice, he was provided with written notice. Since that moment there have been strained relations and his protests have evolved from threats of counter actions to refuge employees (trespass charges) to appeals to the Regional Director, to a letter writing campaign from past clients to the Bureau and several Senators. It would appear that he is making a concerted effort to have the refuge manager ousted.

A second neighbor, Mr. Hugh Soest, has for several years managed and released as he deemed fit, the refuge water flow from South Twin Creek. He has steadfastly contended that he releases to the refuge its total water share any time that it is called for and that most of the time he releases

more than the rightful share. He contends further that if he didn't manage the water and permitted it to follow its historical course that all of the water would be lost through percolation and/or transpiration to willow growth. There is no doubt that much would be lost in this manner, but he has been successful in refusing entry to his property for purposes of cleaning the water course. Several meetings have been held with Mr. Soest in an effort to get the situation cleared up because the refuge has no way of knowing for certain that it is getting the proper amounts of water. A representative from the solicitors office, Mr. Elmer Nitzschke, and Regional Hydraulic Engineer, Mr. William Godby, made an on-the-ground review of the situation in May. A meeting with Soest subsequent to this review resulted in a meeting-of-the-minds as to how the situation could be resolved. The main points of this agreement are that measuring devices will be installed to measure precisely the water flow above Soest's property and as it leaves his property to enter the refuge; he would deliver an amount equal to the inflow and would permit a representative from the refuge to inspect or check the structures at any time. A final signed agreement is pending full review of all particulars by interested parties - State Engineer of Wyoming, Washington Office of the Bureau, and Mr. Soest.

Refuge employees continued their fine record of participation in the incentive award program. Jim Flower received an award for an addition of lugs on the tracks of the Thiokol machine to increase traction. He received a second award for fabricating a spray devise on the nozzle of the front mounted pump on the fire truck, which could be used for fighting range fires and for wetting down roadways. Wesley Goetz devised a permanent base with a spring mount for road snow-markers which discourages horses from rubbing and knocking down. This was good for a cash award. Several additional suggestions have been submitted and are in the process of review.

The refuge was host to two renowned photographers doing features on the refuge or on refuges in general. Mr. Robert Sisson, National Geographic Society, was here in February. His material is to be incorporated in an article on the National Wildlife Refuge system. Mr. Desmond Bartlett, photographer, was here in October and again in December for a prolonged stay to capture the story of Jackson Hole and the National Elk Refuge. His work is aimed primarily for use on British television.

Several changes in the staff occurred during the year. Don Redfearn arrived on February 26th to assume duties of Refuge Manager. Mr. Nels Winters was promoted and transferred in

August to the Foreman IV position at the Monte Vista National Wildlife Refuge. Mr. Wesley Goetz was promoted from Maintenance man and Clerk positions had not been filled by the end of the period because of personnel restrictions. It is hoped these restrictions will be short lived.

Sections I, II, III and IV plus NR forms and photographs of this report were prepared by Bill Blanchard and sections V, VI, and VII were prepared by Don Redfearn.

B. Photographs:

All photographs in this report were taken by refuge personnel.

SIGNATURE PAGE

Submitted by:

Don E. Redfern
(Signature)

2/8/67
(date)

JA

Refuge Manager
(title)

Reviewed, Regional Office:

4/10/67
(date)

W D Wilson
(Signature)
Regional Director
Associate



The three buildings in the top two photos sold for a total of \$484.50.

Bottom photo: The old McBride quarters (built 1905) "goes to town" to lucky bidder at \$56.50 and saved our tearing it down



Visitors to the elk exhibition
pasture pause to read our infor-
mation sign.



Refuge Fence crews
building the pole
and buck fence along
the TV-Ranch boundary.



Ammonium nitrate was spread on 760 acres in November at Mormon Row to increase hay production.



--- while some of the same material was used in the refuge marsh to raise peat ridges and open up areas for waterfowl nesting.



Before and after photos of the cleanout of a private irrigation supply canal through the refuge. Close surveillance by refuge personnel resulted in a neat final appearance.





Edges of the man-caused gorge are contoured and top soil used to cover rubble prior to grass seeding.



View of the gorge with 'cat just starting beautification project.



Y.O.C.'s remove old plank snow fences along a refuge road.



--- and learn how to store irrigation dam canvases.



It took all our iron-horse muscle to move this refuge barn to a useful location.



Mechanic Jim Flower demonstrates the new spray nozzle he invented for road sprinkling and range fire suppression. He received \$15.00 award for this idea



Problems: Even though mild conditions prevail, elk very often move onto the refuge for the winter in November.



--- and to get rid of some that refuse to leave in the spring, we have had help in moving out our Freddie-the-Freeloader elk.



Photo taken in the early 1930's. Elk are not this gentle now days.



--- a late February - 1966 photo on the Chambers Unit feed ground. The first tractor-sled load of breakfast on the way.

3-1750
Form NK-1
(Rev. March 1953)

W A T E R F O W L

REFUGE National Elk Refuge

MONTHS OF January TO April, 19 66

[illegible]

Cont. NR-1
(Rev. March 1953)

W A T E R F O W L

(Continuation Sheet)

REFUGE National Elk Refuge

MONTHS OF January TO April, 1966

(1) Species	(2) Weeks of reporting period								(3)	(4)	
	MAR. 11/19	12/20	13/27	14/3	15/10	16/17	17/24	18/30	Estimated waterfowl days use	Production Broods:Estimate seen : total	
Swans:											
Whistling											
Trumpeter									1200	None	
Geese:											
Canada					4		8		800		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard									5000		
Black											
Gadwall									100		
Baldpate									300		
Pintail									400		
Green-winged teal									500		
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked									100		
Canvasback											
Scaup											
Goldeneye									300		
Bufflehead											
Ruddy											
Other											
Barrows Goldeneye								2			
Coot:	NOTE: Practically all of our small wintering population of waterfowl moved out in early February when open water permitted us to know terminate the Trumpeter swan feeding.										

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	1200	11	None
Geese	800	45	None
Ducks	6700	100	None
Coots			

SUMMARY

Principal feeding areas Spring where Trumpeter swan

were fed.

Principal nesting areas _____

Reported by Don E. Redfearn, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

W A T E R F O W L

REFUGE ~~NATIONAL WILDLIFE REFUGE, JACKSON, MISSISSIPPI~~

MONTHS OF ~~Oct. 1st.~~ TO ~~August 31st.~~ 19 ~~66~~

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
	:	:	:	:	:	:	:	:	:	:
<u>Swans:</u>										
Whistling										
Trumpeter						10			12	
<u>Geese:</u>										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										

The ducks summered on the refuge during the period with the peak number around 250 birds. Common Mallards and Green-winged Teal vied for top numbers. One brood of five birds was hatched in late nesting here. Total production amounted to about 200 ducklings.

The Coot population was also low with the peak population around 25 birds.

3 -1750a
 Cont. 1
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE NATIONAL WILDERNESS, JACKSON, WYOMING

MONTHS OF MAY 1st. TO AUGUST 31, 1944

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter		12			8		8	8	960	2	4
Geese:											
Canada	Canada Goose numbered 25 at the start of the period. Two pair nested										
Cackling	and produced 10 young								1560	2	10
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	Few ducks summered on the refuge during the period with the peak number around 200 birds. Common Mallards and Green-winged Teal vied for top place. One brood of five Redheads was hatched; a rare nesting here. Total production amounted to 100 ducklings.										
Black									12,000		100
Gadwall											
Baldpate											
Pintail											
Green-winged teal											
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
Other											
Coot:	The Coot population was also low with about 25 individuals at the peak.								1,500		

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	<u>300</u>	<u>12</u>	<u>4</u>
Geese	<u>1560</u>	<u>20</u>	<u>10</u>
Ducks	<u>12,000</u>	<u>200</u>	<u>100</u>
Coots	<u>1,500</u>	<u>25</u>	<u>-</u>

SUMMARY

Principal feeding areas Flat Creek marsh

Principal nesting areas Same

Reported by Don E. Sedgeman Refuge manager.

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-175C

Form NA-1

(Rev. March 1953)

WATERFOWL

REFUGE

NATIONAL BLK REEFER

JACKSON, WYOMING

MONTHS OF

SEPTEMBER 1

TO ~~DECEMBER 31~~

, 1966

[illegible]

3-1750.

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE

~~NATIONAL WILDLIFE REFUGE~~
~~JACKSON, WYOMING~~

MONTHS OF

~~SEPTEMBER 1~~

TO

~~DECEMBER 31~~

, 19

~~66~~

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter					24		40	42	1,000	5	2
Geese:											
Canada		225		300				4	15,000		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard								52			
Black											
Gadwall								22			
Baldpate											
Pintail								25			
Green-winged teal								5			
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked								15			
Canvasback											
Scaup								1			
Goldeneye								67			
Bufflehead								12			
Ruddy											
Other											
Coot:											

See NR-1 page 1 for this period

39,000

(over)

	<u>Years Total - 1966</u>			
	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>	
	<u>Total Days Use</u>	<u>: Peak Number</u>	<u>: Total Production</u>	<u>SUMMARY</u>
Swans	<u>3,960</u>	<u>: 42</u>	<u>: 8</u>	Principal feeding areas <u>Flat Creek Marsh</u>
Geese	<u>17,360</u>	<u>: 300</u>	<u>: 10</u>	
Ducks	<u>57,700</u>	<u>: 450</u>	<u>: 100</u>	Principal nesting areas <u>Same</u>
Coots	<u></u>	<u>:</u>	<u></u>	

Reported by Don E. Redman

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Form Nk-1A
(Aug. 1952)

(Other than Waterfowl)

Refuge National Elk Refuge Months of January to April, 19 66

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
Greater Sandhill Crane	1	4/2	23	4/27	23	4/27			0	400
Great Blue Heron	1	4/4	3	4/13	1	4/29			0	45
II. <u>Shorebirds, Gulls and Terns:</u>										
Common Snipe	3	1/7	4	4/27	4	4/27				

(over)

	1)	(2)	(3)	(4)	(5)	6)
III. <u>Doves and Pigeons:</u>						
Mourning dove						
White-winged dove						
IV. <u>Predaceous Birds:</u>						
Golden eagle	1	4/2	1	4/2	None	30
Duck hawk						
Horned owl						
Magpie	60	1/1	60	1/1-4/30	None	7,200
Raven	50	1/1	50	1/1	None	4,800
Crow						
Bald Eagle	2	1/12	2	2/26	None	240
Prairie Falcon	3	4/2	3	4/2	None	25
Red-tailed Hawk	2	4/12	2	4/12	None	75
Sparrow Hawk	1	4/12	1	4/12	None	30
Reported by <i>Don E. Redfearn</i> Don E. Redfearn, Refuge Manager						

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) **Species:** Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) **First Seen:** The first migration record for the species for the reporting period.
- (3) **Peak Numbers:** Estimated number and inclusive dates when peak population of the species occurred.
- (4) **Last Seen:** The last refuge record for the species during the season concerned.
- (5) **Production:** Estimated number of young produced based on observations and actual counts.
- (6) **Total:** Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)Refuge NATIONAL ELK REFUGEMonths of MAY 1st to AUGUST 31st 1956.

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Sandhill Crane (Greater)	16	5-16	16	5-16	5	6-30		2	2	720
Great Blue Heron	1	6-22	2	8-22	1	8-26				260
Sora Rail	1	7-9	1	7-9	1	7-9				100
II. <u>Shorebirds, Gulls and Terns:</u>										
Common Snipe	2	7-19	2*	7-19	2	7-19				7 20
Curlew	2	5-6	4	7-7	4	7-7				500
* Flight "song" common over lower refuge.										

(over)

Form Nk-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Months of SEPTEMBER 1 to SEPTEMBER 31, 1966

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
SANDHILL CRANES	7	9/10	86	9/25	86	9/25	1	1	1	950
II. <u>Shorebirds,</u> <u>Gulls and</u> <u>Terns:</u>										

(over)

	First Seen	Peak	Last Seen	Production	Est. Use
1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove					
White-winged dove					
IV. Predaceous Birds:					
Golden eagle	No observations during the period				
Duck hawk	1	12/29	1	12/29	Visit
Horned owl	1	12/26	1	12/26	Visit
Magpie					
Raven					
Crow					
Bald eagles	1	11/3	1	11/3	Visit
Reported by <i>Don E. Redman</i>					

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge NATIONAL WILDLIFE REFUGE

For 12-month period ending August 31, 1966

Reported by DOE E. REDFERN

Title REFUGE MANAGER

(1) Area or Unit Designation	(2) Habitat			(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage				
	Crops	<u>0</u>	Ducks	<u>12,000</u>	<u>200</u>	<u>100</u>
	Upland	<u>20,849</u>	Geese	<u>1,560</u>	<u>10</u>	<u>10</u>
	Marsh	<u>2,865</u>	Swans	<u>960</u>	<u>4</u>	<u>4</u>
	Water	<u>40</u>	Coots	<u>1,500</u>	<u>25</u>	<u>none</u>
	Total	<u>23,754</u>	Total	<u>16,020</u>	<u>239</u>	<u>114</u>

	Crops	_____	Ducks	_____	_____	_____
	Upland	_____	Geese	_____	_____	_____
	Marsh	_____	Swans	_____	_____	_____
	Water	_____	Coots	_____	_____	_____
	Total	_____	Total	_____	_____	_____

	Crops	_____	Ducks	_____	_____	_____
	Upland	_____	Geese	_____	_____	_____
	Marsh	_____	Swans	_____	_____	_____
	Water	_____	Coots	_____	_____	_____
	Total	_____	Total	_____	_____	_____

	Crops	_____	Ducks	_____	_____	_____
	Upland	_____	Geese	_____	_____	_____
	Marsh	_____	Swans	_____	_____	_____
	Water	_____	Coots	_____	_____	_____
	Total	_____	Total	_____	_____	_____

	Crops	_____	Ducks	_____	_____	_____
	Upland	_____	Geese	_____	_____	_____
	Marsh	_____	Swans	_____	_____	_____
	Water	_____	Coots	_____	_____	_____
	Total	_____	Total	_____	_____	_____

	Crops	_____	Ducks	_____	_____	_____
	Upland	_____	Geese	_____	_____	_____
	Marsh	_____	Swans	_____	_____	_____
	Water	_____	Coots	_____	_____	_____
	Total	_____	Total	_____	_____	_____

	Crops	_____	Ducks	_____	_____	_____
	Upland	_____	Geese	_____	_____	_____
	Marsh	_____	Swans	_____	_____	_____
	Water	_____	Coots	_____	_____	_____
	Total	_____	Total	_____	_____	_____

	Crops	_____	Ducks	_____	_____	_____
	Upland	_____	Geese	_____	_____	_____
	Marsh	_____	Swans	_____	_____	_____
	Water	_____	Coots	_____	_____	_____
	Total	_____	Total	_____	_____	_____

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.

3-1752

Form -2

(April 1946)

UPLAND GA BIRDS

Refuge

~~National Elk Refuge~~

Months of

~~January~~

to

~~April~~

, 19

~~66~~

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage Grouse	Safe Flats, hills & hay meadows 22,500	564			1:1				40	
Ruffed Grouse	Aspen & creek bottom areas Gros Ventre river - 2,000 acres.	135			1:1				10	
Dusky Grouse	Timbered Areas - 500 acres.	100			1:1				5	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752

Form -2

(April 1946)

UPLAND GA BIRDS

Refuge National Elk RefugeMonths of May 1st. to August 31st., 19 66

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage Grouse	Sage flats, hills & hay meadows 22,500 acres	564	none	none	1:1				7	
Ruffed Grouse	Aspen groves and Flat Creek & Gros Ventre river bottom 1,350	135	none	none	1:1				10	
Dusky Grouse	Timbered areas and aspen hills. 500 acres	55	1	4	1:1				9	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge National Elk Refuge Months of September 1 to December 31, 19 46
Jackson, Wyoming

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio		(5) Removals			(6) Total	(7) Remarks
	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage		Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage Grouse	Sagebrush flats, hills & meadows	1500			50-50					65	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-17,
Form NR-3
(June 1945)

BI NAME

Refuge NATIONAL ELK REFUGE
JACKSON, WYOMING

Calendar Year 1966

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number												
ELK	23,791	None	133					*	33			6,600	5,500	50/50
Refuge Feed Ground Census - March 8, 1966 Cows - 4,127 Calves - 1,243 Spikes - 383 Large Bulls - 803 <u>Total - 6,556</u>														

Remarks:

Reported by _____

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge National Elk Refuge Year ending April 30, 1946

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Coyote	All land & marsh areas 23,754	118	-	-	-	-	-	-	-	-	-	-	-	200
Bobcat	23,754	11,877	-	-	-	-	-	-	-	-	-	-	-	2
Striped Skunk	20,000	11,877	-	-	-	-	-	-	-	-	-	-	-	2
Badger	20,000	2,000	-	-	-	-	-	-	-	-	-	-	-	10
Mink	3,500	700	-	-	-	-	-	-	-	-	-	-	-	5
Muskrat	3,500	35	-	-	-	-	-	-	-	-	-	-	-	100
Beaver	1,500	214	-	-	3	-	-	-	-	-	-	-	-	7
* List removals by Predator Animal Hunter														

* List removals by Predator Animal Hunter

REMARKS:

(2 Beaver destroyed - furs worthless as they were summer pelts. Removal made from Pierre's Pond to prevent overflow on dike by beaver raising their dam at the outlet.)

Reported by Don E. Redfearn, Refuge Manager

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

Refuge NATIONAL ELK REFUGE
JACKSON, WYOMING

Year 1966

Botulism

Lead Poisoning or other Disease

Period of outbreak NONE

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease NONE

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks _____

PUBLIC RELATIONS
(See Instructions on Reverse Side)

Refuge National Elk Refuge, Jackson, WyomingCalendar Year 1966**1. Visits**

a. Hunting 600 b. Fishing 1,700 c. Miscellaneous 210,000 d. TOTAL VISITS 212,300

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game	600	17,607	Refuge
Other			

Number of permanent blinds NoneMan-days of bow hunting included above NoneEstimated man-days of hunting on lands adjacent to
refuge 3,000**1b. Fishing (area open to fishing on refuge lands)**

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	4	
Streams and Shores		9

1c. Miscellaneous VisitsRecreation 209,350 Official 350Economic Use 300 Industrial _____**2. Refuge Participation (groups)**

TYPE OF ORGANIZATION	On Refuge		Off Refuge	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs			2	350
Bird and Garden Clubs	2	10		
Schools	2	7	2	8
Service Clubs	5	25	17	1120
Youth Groups	2	80	3	75
Professional-Scientific	6	125		
Religious Groups				
State or Federal Govt.	5	60	14	450
Other			5	510

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	12	Radio Presentations	-
Newspapers (P.R.'s sent to)	3	Exhibits	-
TV Presentations	-	Est. Exhibit Viewers	-

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

3-1757
Form NR-7
(April 1946)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge NATIONAL ELK REFUGE
JACKSON, WYOMING

Year 1966

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Plant- ing	Survival	Cause of Loss	Remarks
Slender Wheat-Grass	Gros Ventre	14 lbs.	20 acres	280 pounds	9/10	unknown		
Bluebunch Wheat-Grass	Flat Creek	per acre				seeding		
Streambank Wheat-Grass	alluvial					showed good		
	fan and					sprouting		
	contoured					and growth		
	slopes.					by late		
						October.		
Western Wheat-Grass								
Green Needle-Grass								
Kentucky Blue-Grass								
Kentucky Tall Fescue								

TOTAL ACREAGE PLANTED:

Marsh and aquatic.....
Hedgerows, cover patches 20 acres
Food strips, food patches.....
Forest plantings.....

3-1758
Form NR-6
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge NATIONAL ELK REFUGE County TETON State WYOMING
JACKSON, WYOMING

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Brome Orchard					2,000	2,000	Grass for elk pasture		
Wheat grass							Fallow Ag. Land		

No. of Permittees: Agricultural Operations none Haying Operations none Grazing Operations one

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Hay crops at Norman Row	1,366	1,006	None	1. XXXXX Horses	22	181	None	23,791
Hay on refuge	683	500	None	2. Other Elk	6,556	18,500	None	23,771
				1. Total Refuge Acreage Under Cultivation				3,976
Hay - Wild				2. Acreage Cultivated as Service Operation				3,976

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge NATIONAL ELK REFUGE, JACKSON, WYOMINGMonths of JANUARY through DECEMBER 31, 1966

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Wheat	354	210	564			235	235	329		329	
Oats		3,000#	3,000#		3,000#						
Orchard		300#	300#		300#						
Brome		300#			300#						

(8) Indicate shipping or collection points 200 Bu. received from Kirwin National Wildlife Refuge - 08-01-66(9) Grain is stored at Refuge grain bins east of shop -

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

TIMBER REMOVAL

Refuge NATIONAL ELK REFUGE, JACKSON, WYOMING Year 191966

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
There was no timber removal during the year.								

Total acreage cut over.....

Total income.....

No. of units removed B. F.

Method of slash disposal.....

Cords.....

Ties.....



BUREAU OF SPORT FISHERIES AND WILDLIFE

INTER-OFFICE TRANSMITTAL

30930

☒ Director, BSWF, Washington, D.C. Attn: Div. of Wildlife Refuges☐ Regional Director, _____☐ Project Leader, _____☐ _____☐ Regular Mail☐ Air Mail☐ Action☐ Information

From	Office	Date
Division of Wildlife Refuges	Albuquerque, New Mexico	4-18-67

Subject

Extra set of Narrative Forms - Sept-Dec., 1966 as requested.
National Elk Refuge

3-1908

(Rev. 6/63)

(Attach securely to material to be transmitted & mail through regular channels)

B R F O W L

MONTHS OF SEPTEMBER 1 TO DECEMBER 31, 1966

(2)

reporting period

: 5 : 6 : 7 : 8 : 9 : 10

he refuge in September when 11 birds were seen.
over 29, when 300 were flushed from the refuge

this fall. Peak numbers averaged around 450.

change when the Gadwall moved through but
eal were predominant in that order. Greenings
o. 1 bird by gadwall's following late October.

with only 29 feeding in the lower marsh.

3-1750.

Cont. NR-1

(Rev. March 1953)

WATERFOWL (Continuation Sheet)

REFUGE NATIONAL ELK REFUGE
JACKSON, WYOMING

MONTHS OF SEPTEMBER 1 TO DECEMBER 31, 19 66

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods:Estimate seen: total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter					34		40	42	1,800	5	8
Geese:											
Canada		225		300				4	15,000		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard								52			
Black											
Gadwall								22			
Baldpate											
Pintail								25			
Green-winged teal								5			
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked								15			
Canvasback											
Scaup								1			
Goldeneye								67			
Bufflehead								18			
Ruddy											
Other											
Coot:											

See NR-1 page 1 for this period

39,000

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	3,960	42	8
Geese	17,360	300	10
Ducks	57,700	450	100
Coots	3,000	25	-

SUMMARY

Principal feeding areas Flat Creek Marsh

Principal nesting areas Same

Reported by Don E. Redfern

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751
Form NA-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge NATIONAL ELK

Months of SEPTEMBER 1 to DECEMBER 31, 1966

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
SANDHILL CRANES	7	9/10	86	9/25	86	9/25	1	1	1	950
II. <u>Shorebirds, Gulls and Terns:</u>										
						(over)				

(1)	First Seen		Peak		Last Seen		Production	Est. Use
	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove								
White-winged dove								
IV. Predaceous Birds:								
Golden eagle	No observations during the period							
Duck hawk	1	12/29	1	12/29	1	12/29		Visit
Horned owl	1	12/26	1	12/26	1	12/26		Visit
Magpie								
Raven								
Crow								
Bald Eagles	1	11/3	1	11/3	1	11/3		Visit
Reported by						<i>Don E. Sullivan</i>		

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge National Elk Refuge Months of September 1 to December 31, 1966
Jackson, Wyoming

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage Grouse	Sagebrush flats, hills & meadows	1500			50-50				65	

3-1
Form NR-3
(June 1945)

BIG GAME

Refuge NATIONAL ELK REFUGE
JACKSON, WYOMING

Calendar Year 1966

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number												
ELK	23,791	None	133					*	33			6,600	5,500	50/50
	Refuge Feed Ground Census - March 8, 1966 Cows - 4,127 Calves - 1,243 Spikes - 383 Large Bulls - 803 <u>Total - 6,556</u>													

Remarks:

Reported by _____

Refuge NATIONAL ELK REFUGE
JACKSON, WYOMING

Year 1966

Botulism

Lead Poisoning or other Disease

Period of outbreak NONE

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease NONE

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks _____

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge National Elk Refuge, Jackson, WyomingCalendar Year 1974

1. Visits

a. Hunting 600 b. Fishing 1700 c. Miscellaneous 210,000 d. TOTAL VISITS 212,300

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game	<u>600</u>	<u>17,507</u>	<u>Refuge</u>
Other			

Number of permanent blinds NoneMan-days of bow hunting included above NoneEstimated man-days of hunting on lands adjacent to
refuge 3,500

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	<u>4</u>	
Streams and Shores		<u>9</u>

1c. Miscellaneous Visits

Recreation 207,350 Official 350
 Economic Use 300 Industrial _____

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge		Off Refuge	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs			<u>2</u>	<u>350</u>
Bird and Garden Clubs	<u>2</u>	<u>10</u>		
Schools	<u>2</u>	<u>7</u>	<u>2</u>	<u>8</u>
Service Clubs	<u>5</u>	<u>25</u>	<u>17</u>	<u>1120</u>
Youth Groups	<u>2</u>	<u>20</u>	<u>3</u>	<u>75</u>
Professional-Scientific	<u>6</u>	<u>125</u>		
Religious Groups				
State or Federal Govt.	<u>5</u>	<u>60</u>	<u>14</u>	<u>450</u>
Other			<u>5</u>	<u>510</u>

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	<u>12</u>	Radio Presentations	<u>-</u>
Newspapers (P.R.'s sent to)	<u>3</u>	Exhibits	<u>-</u>
TV Presentations	<u>-</u>	Est. Exhibit Viewers	<u>-</u>

3-1757
Form NR-7
(April 1946)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge NATIONAL ELK REFUGE Year 1956
JACKSON, WYOMING

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Plant- ing	Survival	Cause of Loss	Remarks
Slender Wheat-Grass	Gros Ventre	14 lbs.	20 acres	280 pounds	9/10	unknown		
Bluebunch Wheat-Grass	Flat Creek	per acre				seeding		
Streamback Wheat-Grass	alluvial					showed good		
	fan and					sprouting		
	contoured					and growth		
	slopes.					by late		
						October.		
Western Wheat-Grass								
Green Needle-Grass								
Kentucky Blue-Grass								
Kentucky Tall Fescue								

TOTAL ACREAGE PLANTED:

Marsh and aquatic.....
Hedgerows, cover patches 20 acres
Food strips, food patches.....
Forest plantings.....

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge NATIONAL ELK REFUGE County TETON State WYOMING
JACKSON, WYOMING

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Brome Orchard					2,000	2,000	Grass for	elk pasture	
Wheat grass								Fallow Ag. Land	

No. of Permittees: Agricultural Operations none Haying Operations none Grazing Operations one

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Hay crops at Mormon Row	1,366	1,006	None	1. XXXXX Horses	22	181	None	23,791
Hay on refuge	683	500	None	2. Other Elk	6,556	18,500	None	23,791
				1. Total Refuge Acreage Under Cultivation				3,976
Hay - Wild				2. Acreage Cultivated as Service Operation				3,976

REFUGE GRAIN REPORT

Refuge ~~NATIONAL ELK REFUGE, JACKSON, WYOMING~~Months of ~~JANUARY~~ through ~~DECEMBER 31, 1966~~

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Wheat	354	210	564			235	235	329		329	
Oats		3,000#	3,000#		3,000#						
Orchard		300#	300#		300#						
Brome		300#			300#						

(8) Indicate shipping or collection points ~~200 Bu. received from Kirwin National Wildlife Refuge - 08-01-66~~(9) Grain is stored at ~~Refuge grain bins east of shop -~~

(10) Remarks _____

*See instructions on back.

TIMBER REMOVAL

Refuge NATIONAL ELK REFUGE, JACKSON, WYOMING Year 1966

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
		There was no timber removal during the year.						

Total acreage cut over..... Total income.....

No. of units removed B. F. Method of slash disposal.....

Cords.....

Ties.....

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

Reporting Year

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
No pesticide use to report this year.								

10. Summary of results (continue on reverse side, if necessary)